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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/664,708

09/17/2003

Michael Allen Bryner

TK3690USNA

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04/01/2008

E I DU PONT DE NEMOURS AND COMPANY

LEGAL PATENT RECORDS CENTER

BARLEY MILL PLAZA 25/1122B

4417 LANCASTER PIKE

WILMINGTON, DE 19805

EXAMINER

PIZIALI, ANDREW T

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

04/01/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/664,708 | <b>Applicant(s)</b><br>BRYNER, MICHAEL ALLEN |  |
|                              | <b>Examiner</b><br>Andrew T. Piziali | <b>Art Unit</b><br>1794                      |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 17-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-14, 16, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/17/03 & 1/16/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/4/2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4-14, 16, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The fibrous barrier web consisting of hydrophobic fibers is critical or essential to the practice of the invention, but is not included in the claims. See Examples 1-19. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-9, 12-14, 16, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,723,669 to Clark in view of USPN 5,695,849 to Shawver.

Clark discloses a nonwoven fabric comprising a support web and a fibrous barrier web consisting of continuous fibers having average diameters of less than 1.0 micrometer having a hydrohead of up to and beyond 80 mbars (0-82+ cm) and a Frazier permeability of up to and beyond 100 CFM (0-30.5+ m<sup>3</sup>/m<sup>2</sup>-min) (see entire document including column 1, lines 26-51, column 2, lines 6-21, the paragraph bridging columns 3 and 4, column 11, lines 46-58, the paragraph bridging columns 12 and 13, and the Examples).

Clark does not appear to specifically mention the use of hydrophobic fibers to increase the hydrohead, but Shawver discloses that it is known in the nanofiber nonwoven fabric art that hydrohead is influenced by the hydrophobicity of the fibers (see entire document including column 6, lines 37-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the nanofibers from any suitable fibrous material, such as highly hydrophobic material, motivated by a desire to form a fabric with a very high hydrohead, such as 145 to 400 cm, and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability and desired characteristics.

Regarding claim 4, the barrier web fibers may have an average diameter of less than 0.5 micrometer (paragraph bridging columns 3 and 4).

Regarding claims 5 and 6, the barrier layer basis weight may be between 13 and 300 g/m<sup>2</sup> (paragraph bridging columns 3 and 4).

Regarding claims 7-9, the barrier web comprises nanofibers of hydrophobic polyolefin polymer or copolymer having the claimed repeating units (column 4, line 35 through column 8, line 50).

Regarding claim 12, considering that pore size is proportional to fiber diameter (see current specification page 8, lines 10-15), and considering that Clark discloses that the barrier layer fiber diameters may be less than 10 micrometer (paragraph bridging columns 3 and 4), it appears that the fabric disclosed by Clark inherently possesses the claimed pore size.

Regarding claim 13, Clark does not appear to mention a solids fraction value for the barrier fabric, but Clark does disclose that the fabric may be thermal point bonded (column 12, lines 12-53). Considering that calendering increases solids fraction (see page 15, lines 12-22 of the current specification), it is reasonable to presume that Clark inherently meets this limitation. In addition, Clark discloses that the cohesion between the layers can be increased (varied) as desired (column 12, lines 12-53).

Regarding claim 16, the fabric may comprise a fine fiber/SB construction (column 11, lines 46-58).

Regarding claims 23 and 24, the support web fibers may have a diameter of less than about 13 micrometers (column 2, lines 23-45).

***Claim Rejections - 35 USC § 103***

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,723,669 to Clark in view of USPN 5,695,849 to Shawver as applied to claims 1, 4-9, 12-14, 16, 23 and 24 above, and further in view of USPN 6,746,517 to Benson.

Clark does not appear to teach adding a hydrophobic coating material, but Clark and Benson both relate to a nanofiber nonwoven fabrics useful in filter media. Benson teaches that adding a hydrophobic coating to the nanofibers is preferable, and such a coating is typically fluorocarbon containing (column 12, lines 47-67). It would have been obvious to a person having ordinary skill in the art at the time of the invention to add fluorocarbon coating to the material of Clark, motivated by a desire to improve filtration properties.

***Response to Arguments***

7. Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew T Piziali/

Primary Examiner, Art Unit 1794